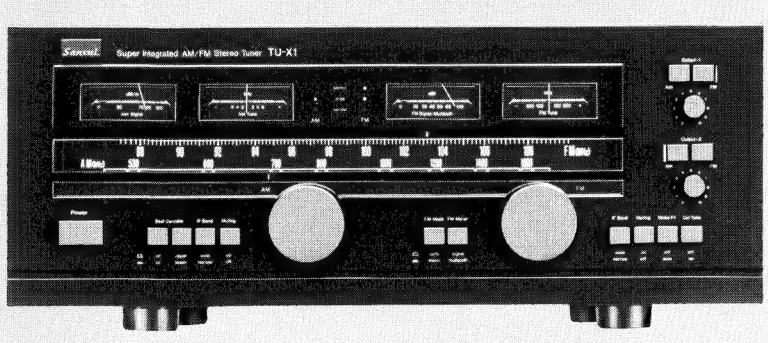
SERVICE MANUAL

SUPER INTEGRATED AM/FM STEREO TUNER

SANSUI TU-X1



Sansui

SANSUI ELECTRIC CO., LTD.

SPECIFICATIONS

FM Section

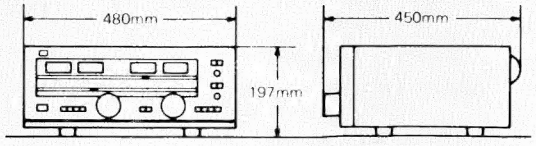
Tuning range . . . . . 88 to 108 MHz
Usable Sensitivity
Mono IHF . . . . . 8.7 dBf (1.5 μV: T100)
DIN . . . . . 0.9 μV
Stereo IHF . . . . . 14.5 dBf
50 dB Quieting Sensitivity
Mono . . . . . 12.5 dBf
Stereo . . . . . 34.0 dBf
Signal to noise ratio at 85 dBf
Mono . . . . . 86 dB
Stereo . . . . . 83 dB
Distortion at 65 dBf
Mono . . . . . less than 0.03 % at 100 Hz
less than 0.02 % at 1,000 Hz
less than 0.04 % at 6,000 Hz
Stereo . . . . . less than 0.04 % at 100 Hz
less than 0.03 % at 1,000 Hz
less than 0.05 % at 6,000 Hz
Alternate channel selectivity (at 400 kHz)
WIDE . . . . . 55 dB
NARROW . . . . . 80 dB
Capture ratio . . . . . 0.9 dB
Image response ratio . . 130 dB (at 98 MHz)
Spurious response ratio
. . . . . 130 dB (at 98 MHz)
Stereo separation . . . . 45 dB at 1,000 Hz
50 dB at 1,000 Hz
35 dB at 10,000 Hz
Frequency response Stereo
. . . . . 20 to 15,000 Hz
+0.2 dB, −0.8 dB
Antenna input impedance
. . . . . 300 ohms balanced
75 ohms unbalanced

AM Section

Tuning range . . . . . 530 to 1,600 kHz
Usable sensitivity (bar antenna)
NARROW . . . . . 50 dB/m
Selectivity
NARROW (±9 kHz)
. . . . . 35 dB
Signal to noise ratio . . 65 dB
Distortion (at 30 % Modulation, 90 dB/m)
. . . . . less than 0.2 %
Image response ratio . . 65 dB at 1,000 Hz
IF response ratio . . . . 70 dB at 1,000 Hz
Frequency response . . 40 to 7,000 Hz
+0 dB, −3.0 dB

Others

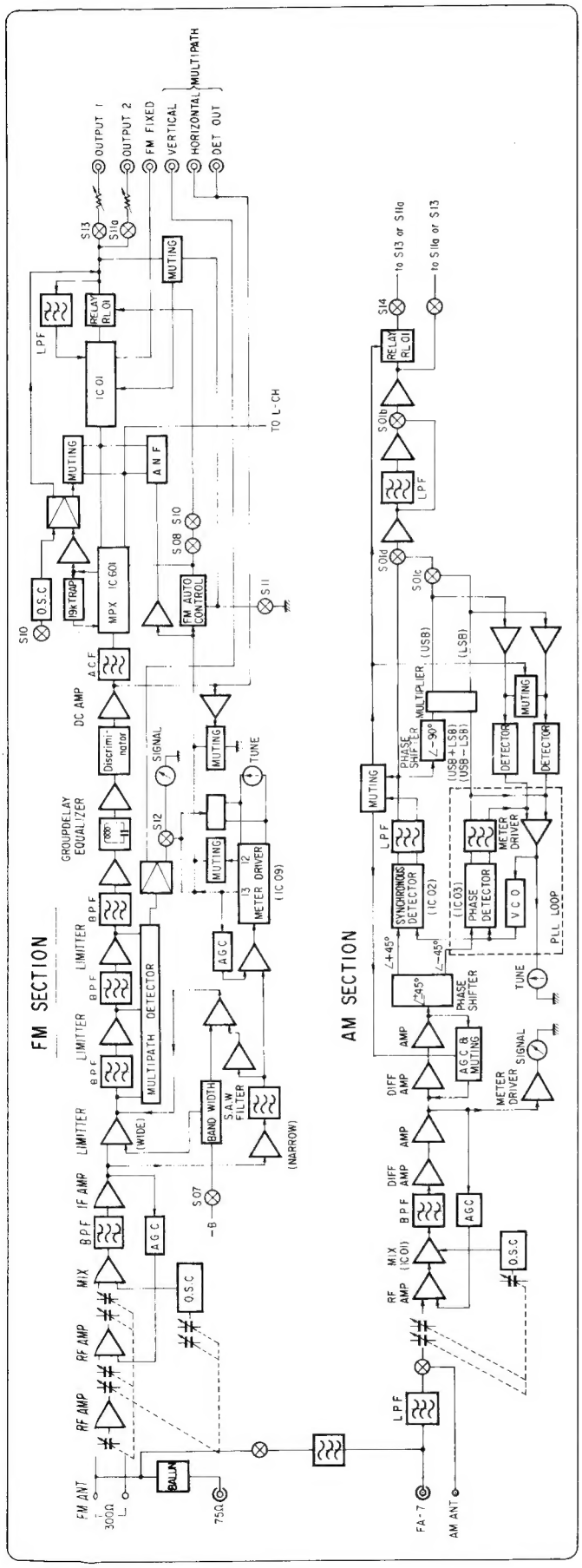
Output voltage and impedance
OUTPUT . . . . . 0 to 1.2 V/2.5 kilohms
FM OUTPUT . . . . 200 mV
Power requirements . . 100, 120, 220, 240 V 50/60 Hz
For U.S.A. and Canada
. . . . . 120 V (60 Hz)
Power consumption . . 30 W



Weight . . . . . 16.2 kg (35.7 lbs) net
18.7 kg (41.2 lbs) packed

* Design and specifications subject to changes without notice for improvements.
* In order to simplify the explanation illustrations may sometimes differ from the originals.

1. BLOCK DIAGRAM



2. OPERATION

TU-X1 employs PLL synchronized product detector in AM section and group delay equalizer, band-width selector using SAW filter, and wide-range power ratio detector in FM section to improve S/N ratio and distortion.

♦ AM section

The broadcast signal from antenna is applied to RF amp (FET 01) and mixed with OSC signal at IC02, then becomes 455 kHz IF signal after passing through T02. After amplified by the differential amp next to T02, one of the IF signal is fed to RF amp at first stage as an AGC signal to control the gain through D01 D02, the voltage doubler.

The other IF signal is branched and one is applied to signal meter, and the other is supplied to phase shifter composed of R62, VR07, R63, R64, and C36.

The IF signal to phase shifter is also devided into a signal toward PLL synchronized product detector, and a signal to TR08, 09 after amplified by TR07.

The signal through TR08, 09 is applied to photo-coupler (PC01) and controls feed-back amount from TR07 to the differential amp composed of TR05, 06 as AGC function by photo-coupler.

By the phase-shifter, $\pi/4$ advancing signal than IF signal is applied to pin 4 of IC02, and $\pi/4$ lagging signal to pin 4 of IC03, where the function of IC02 is synchronized detector to detect IF signal, and IC03 is phase detector to obtain VCO signal sinchronized with IF signal necessary for synchronized detection and constitutes PLL-loop with VCO composed of TR14, 11, 12. The signal input to pin 4 of IC02 is output from pin 12 as AF signal after synchronously detected.

1. AM PLL SYNCHRONIZED PRODUCT DETECTION

As shown in Fig. 2-1 (a), the spectrum of AM signal is composed of upper & lower side-bands to be centered on the carrier "fc".

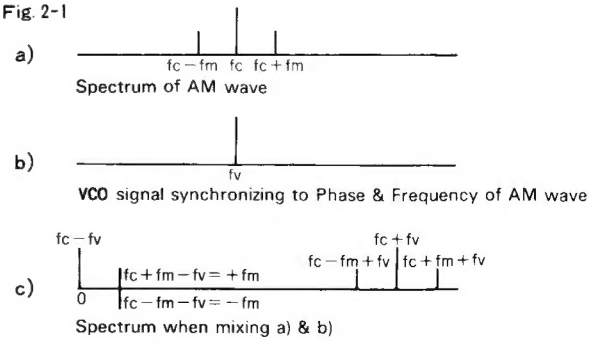
The side-bands locate further from carrier "fc" if modurating frequency becomes higher. Supposing carrier frequency "fc" as IF frequency 455 kHz, and generating a signal with the same frequency & phase as IF signal, the result of IF signal mixed with VCO signal is as follow.

Generally, when a signal with frequency "fo" is mixed with a certain frequency signal "f_1", signals "$f_0 \pm f_1$" appear resultly. Therefore when mixing IF signal "fc ±fm" [Fig. 2-1 (a)] with VCO signal [Fig. 2-1 (b)] synchronized to the IF signal, AM signal centering "fc + fm (= 2fc)" with side-bands ±fm, and +fm (upper side-band), −fm (lower side-band) will appear as shown in Fig. 2-1 (c).

In conclusion, if "+fm" or "−fm" is taken out somehow, the modulating signal (Audio signal) will have been reproduced.

Further, PLL synchronized product detection allows AM reception of wide range without interference because it is not necessary to pick out the desired frequency by BPF at IF stage as conventional emveloop detection.

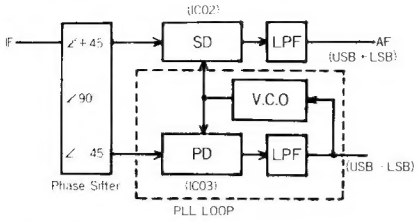
Fig. 2-1



2. AM SYNCHRONIZED DETECTION & PLL

For synchronized detection of AM signal, it is required to mix a signal having the same frequency & phase with AM signal that TU-

X1 employs PLL circuit to obtain the signal synchronized with IF signal.



• Operation of LM 1496N

Fig. 2-3 shows the internal circuit of LM 1496N used for AM synchronized detector & phase detector.

When IF signal is applied to pin 4 and VCO signals to pin 8, 10 in antipase, the signal at point "a" is (pin 4) x (pin 8) and point "b" (pin 4) x (pin 10). For AM synchronized detection, IF signal "e_1" (the input signal of IC02 pin 4) is expressed as follow:

$$e_1 = E_1 (1 - K \cos \omega_m t) \cos \omega_c t$$

$$= E_1 \cos \omega_c t - \frac{1}{2} E_1 K \cos (\omega_c + \omega_m) t - \frac{1}{2} E_1 K \cos (\omega_c - \omega_m) t$$

where: E_1 : amplitude of carrier

ω_c : angular frequency of IF carrier

K : moduration factor

ω_m : angular frequency of moduration signal

and supposing VCO signal "e_2" applied to pin 8 of IC02 as follow:

$$e_2 = -E_2 \cos \omega_v t$$

where: E_2 : amplitude of VCO signal

ω_v : angular frequency of VCO signal

the output of pin 12 after passing through the low-pass filter becomes as below:

$$\text{pin 12 (SDout)} = -\frac{1}{2} E_1 E_2 \cos (\omega_c - \omega_v) t + \frac{1}{4} E_1 E_2 K \cos (\omega_c - \omega_v + \omega_m) t + \frac{1}{4} E_1 E_2 K \cos (\omega_c - \omega_v - \omega_m) t$$

As the VCO frequency ω_v is synchronized to IF carrier frequency fc, that $\omega_v = \omega_c$, the equation above becomes followingly:

$$\text{pin 12 (SDout)} = -\frac{1}{2} E_1 E_2 + \frac{1}{4} E_1 E_2 K \cos \omega_m t \ \boxed{\text{USB}} + \frac{1}{4} E_1 E_2 K \cos (-\omega_m) t \ \boxed{\text{LSB}}$$

The equation above indicates the output of synchronized detector is the AF signal of upper side-band [USB] + lower side-band [LSB] On the other hand, for the PLL phase detector, $\pi/2$ (90°) lagging signal than input signal of IC02 is applied to pin 4 of IC03. Therefore, supposing input signal 'e_1' of IC03 pin 4 as below:

$$e_1' = E_1 (1 + K \cos \omega_m t) \cos (\omega_c t - 90°)$$

$$= E_1 \sin \omega_c t - \frac{1}{2} E_1 K \sin (\omega_c + \omega_m) t - \frac{1}{2} E_1 K \sin (\omega_c - \omega_m) t$$

the output signal from pin 12 of IC03 after low pass filter is as follow:

$$\text{pin 12 (PDout)} = -\frac{1}{2} E_1 E_2 \sin (\omega_c - \omega_v) t + \frac{1}{4} E_1 E_2 K \sin (\omega_c + \omega_m - \omega_v) t + \frac{1}{4} E_1 E_2 K \sin (\omega_c - \omega_m - \omega_v) t$$

$$= \frac{1}{4} E_1 E_2 \sin \omega_m t \ \boxed{\text{USB}} - \frac{1}{4} E_1 E_2 K \sin \omega_m t \ \boxed{\text{LSB}}$$

The output of phase detector is upper side-band (USB) – lower side-band (LSB), and while PLL is locked with carrier frequency to receive FM broadcast, the output of phase detector is 0.

Fig. 2-4, 2-5 show the input & output waveforms of synchronized detector & phase detector. In Fig. 2-4 (synchronized detector), full-wave rectified output (c) is obtained to switch AM IF signal (a) by VCO signal (b).

When full-wave rectified output is applied to integrator circuit, the output becomes emvelope of (c), AF signal.

Fig. 2-3 LM1496N

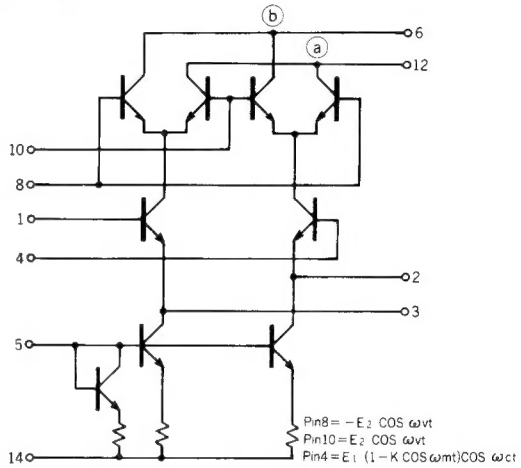


Fig. 2-4

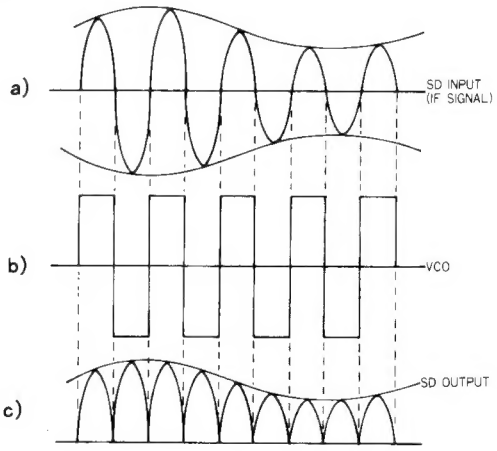
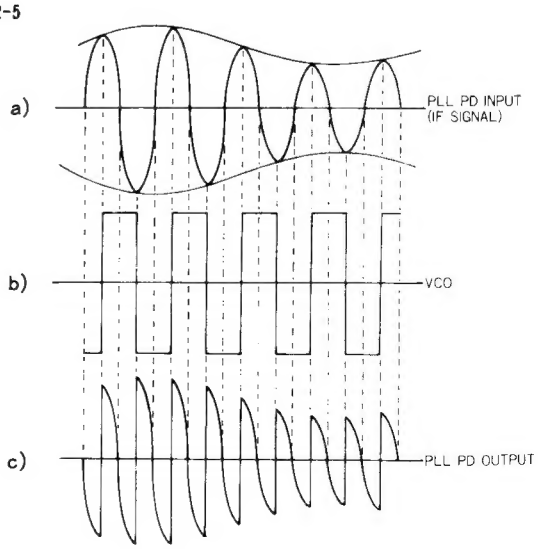


Fig. 2-5



3. BEAT CANCELLER CIRCUIT

When the broadcast desired is interfared as Fig. 2-6, the signal appeared with beat sound from speaker. In order to eliminate such a interference, TU-X1 provides beat canceller circuit composed of TR24, 25, 26.

As shown in Fig. 2-6, if the upper side-band of desired broadcast is interfared the interfared component can be cancelled to pick up upper or lower side-band only because the same components are included in AM broadcast signal of upper & lower side-bands. In the detector stage of TU-X1, the respective output of synchronized detector is upper side-band + lower side-band, and PLL phase detector upper side-band − lower side-band.

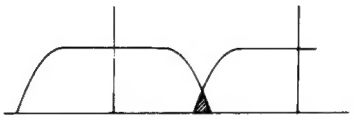
Therefore, combining the outputs of PLL phase detector & synchronized one to add or subtract as follow,

Synchronized detector output (USB + LSB)
+ PLL phase detector output (USB − LSB) = 2 (USB)

Synchronized detector output (USB + LSB)
− PLL phase detector output (USB − LSB) = 2 (LSB)

the output of beat canceller can be picked out USB or LSB only as above, which allows high quality AM reception without interference.

Fig. 2-6



♦ FM Section

FM broadcast signal is mixed with OSC signal at FET03 after amplified RF stage, the couple of amplifier, and is output from IF amp of TR02 as 10.7 MHz IF signal to pass through wide band BPF.

IF signal is branched and one becomes AGC signal to be rectified by means of voltage doublar. The other is applied to SAW filter if IF band selector to be narrow and band selector being wide the signal passes through a limiter amp, then supplied to IF BPF.

The multipass component of IF signal is detected while IF signal is passing through the limitter amps and BPFs. IF signal passed through is applied to group delay equalizer, then wide band ratio detector.

AF composit signal output of ratio detector is amplified by high-slew rate DC amp then through ACF (Adjacent Channel Filter) to MPX circuit.

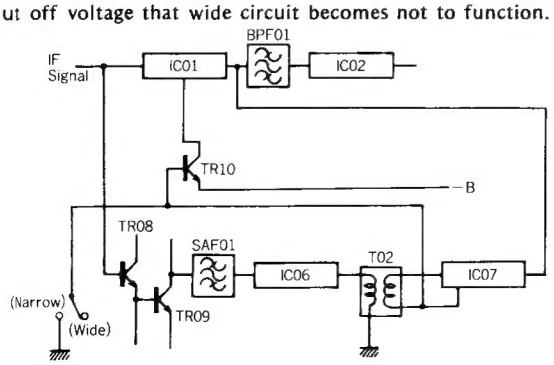
1. FM IF BAND SELECTOR & SAW FILTER (See Fig. 2-7)

IF band selector being wide, the selectivity is 55 dB at 400 Hz detuning by using LC block filter, and it being narrow, the selectivity over 80 dB can be obtained to be added a SAW filter.

The band width selection is performed by IF band selector and TR10. While IF band selector being wide, the bias voltage added to input pin 5, 7 of IC07 is cut off (the same voltage of $-V_{CC}$) that IF signal applied to pin No. 7 of IC01 is amplified and output from pin No. 2.

The selector being narrow, the bias to pin 5, 7 of IC07 is normal that IF signal is amplified then output from pin No. 1 of IC07. On the other hand, TR10 turns on and bias added to input terminal of IC01 is cut off voltage that wide circuit becomes not to function.

Fig. 2-7



2. SAW Filter (Surface Accoustic Wave Filter)

The characteristic desired for the filter used in FM IF stage is:

1) to have high selectivity.

2) to have linear phase characteristic (group delay characteristic)

The ceramic filter has a high selectivity, and LC block filter provides linear phase characteristic, which are conventionaly used, however they are utilizing resonance that to design phase and amplitude characteristic independently is hardly achieved.

The SAW filter, it is idealy possible to design phase and amplitude characteristic independently because the propergation verosity of surface accoustic wave being constant regardless of signal frequency, therefore the filter to meet with the characteristic for FM IF stage is realizable.

The configuration of SAW filter is Interdigital Transducer (comb-like electrode) photo-etched on the piezoelectric element such as ceramic & ZnO as shown in Fig. 2-8 a) b) c).

Generally, when inpulse is applied to Interdigital Transducer (IDT), the mechanical strain produced between adjacent electrodes by the piezoelectric effect, surface accoustic wave propagates toward the rectangular direction against IDT as shown in Fig. 2-8 a).

The function of piezoelectric element is to transform electric signal to surface wave of accoustic signal, or inversed function.

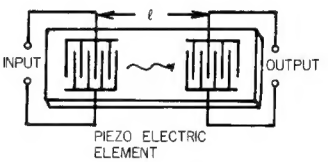
When using surface wave for filters, IDTs for both transmission and reception are necessary as shown in Fig. 2-8 (c). Supposing electrical signal applied to IDT for transmission, the center frequency f_0 is determined by pitch λ_0 of IDT and verosity V of surface wave propergating on substrate, and the relation between them is indicated by equation below.

$$f_0 = V/\lambda_0$$

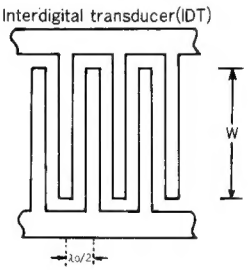
In addition, the band width of filter is inversely proportional to the pitch λ_0 and amount of electrode pair N of IDT, and phase characteristic is defined by the distance between the IDT for transmission & reception.

Fig. 2-8

a)



b)



c)

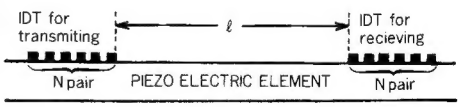
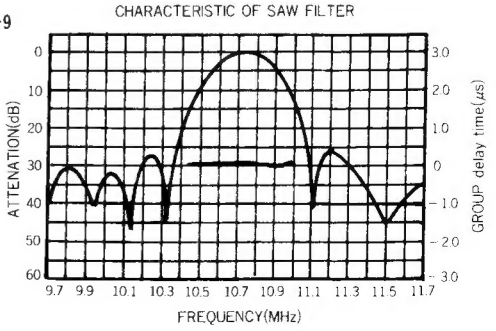


Fig. 2-9



3. Multipath interference & Multipath Meter circuit

Multipath interference is occurred when direct wave from FM station and reflected wave by buildings or mountains are received simultaneously and interference between them are occurred to modulate direct wave in amplitude and phase by reflected wave because of time delay of reflected wave.

The AM component can be eliminated by limiter amp, however, PM component appears as distortion factor. Thereby when multipath distortion is occurred, it is recommended to use a beam antenna to aim the direction that the indication of Multipath Meter becomes minimum.

- **Multipath Meter circuit (see Fig. 2-12)**

The function of Multipath Meter circuit is to detect AM component caused by multipath interfernece, then indicate the amount multipath interference by the multipath meter or oscilloscope.

As shown in Fig. 2-12, the circuit is 4 stage type detection that it is possible to detect the amount of multipath interference precisely.

Fig. 2-12

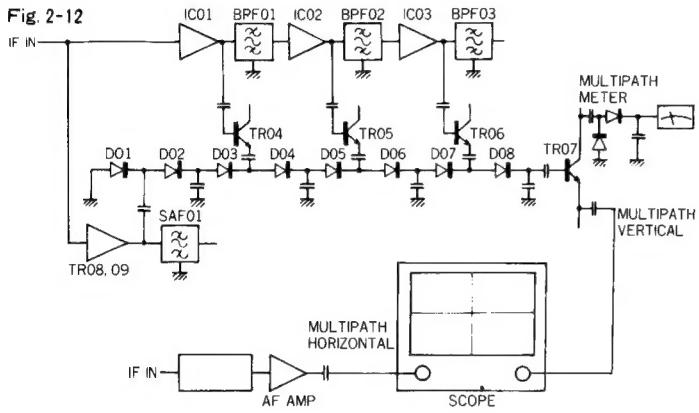


Fig. 2-10

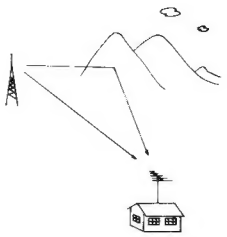
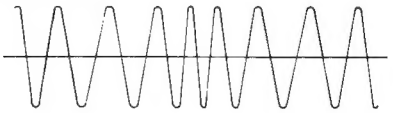


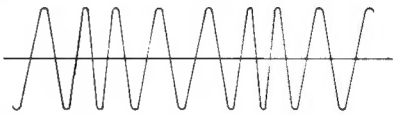
Fig. 2-11

1) Modurating wave-form(Audio Signal)

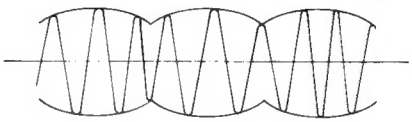
2) Direct wave



3) Refrected wave



4) Direct wave+Refrected wave(FM wave with Multipath)

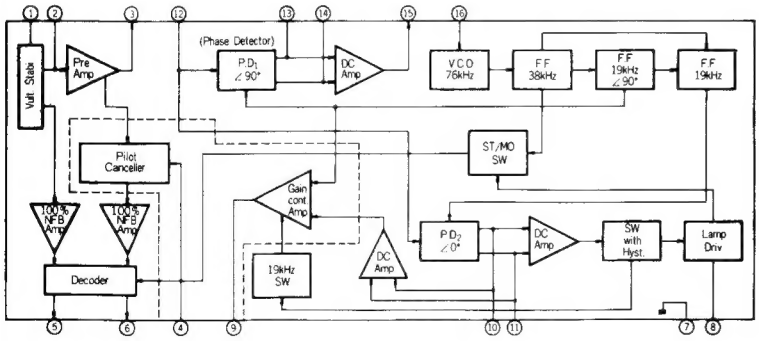


5) AM Component occured by Direct wave+ Refrected wave

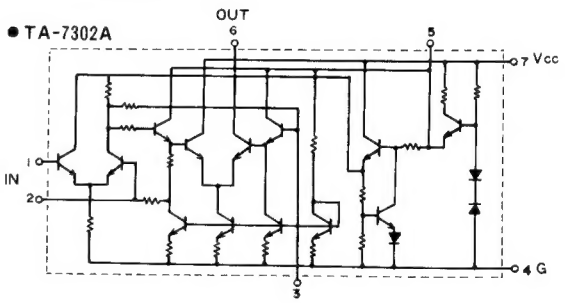
6) Distorted Audio output caused by PM component occured by Direct+Refrected wave

◆Internal Block Diagram of ICs

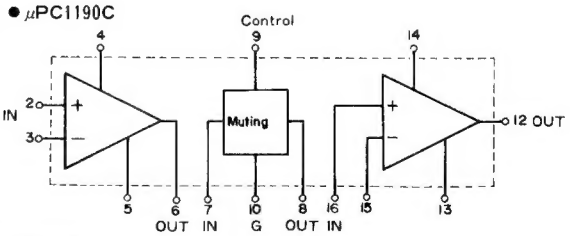
● HA11223



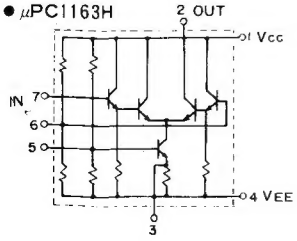
● TA-7302A



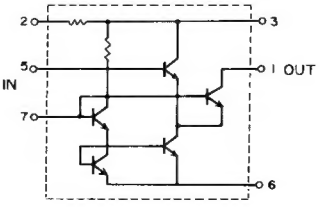
● μPC1190C



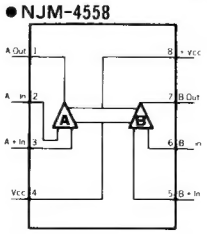
● μPC1163H



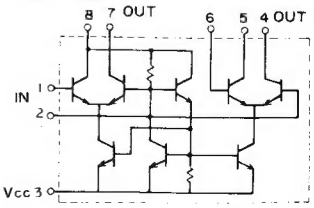
● μPC555H



● NJM-4558



● LA-1222



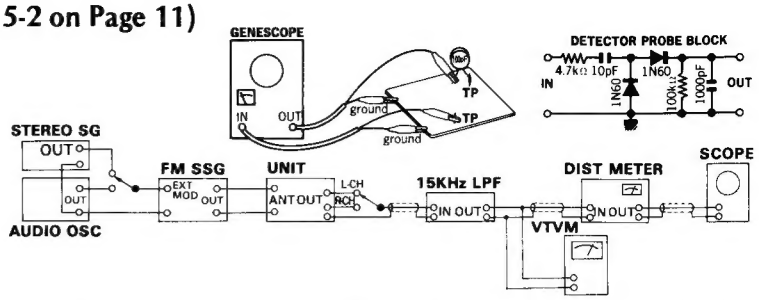
3. ADJUSTMENT (See PHOTOS 5-1, 5-2 on Page 11)

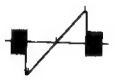
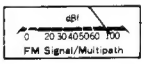
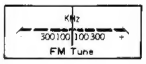
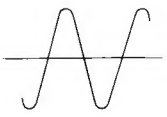
3-1. FM ADJUSTMENT

1) FM, IF, RF Adjustment

Note:

1. Selector . . . . FM MONO
2. Connection . . Connect the output of genescope to TP02 F-2936 through 100 pF ceramic capacitor.



STEP	SUBJECT	FEED SIGNAL FROM	FEED SIGNAL TO	MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
1.	IF Coil, Group Delay Adj. (In case of using Genescope)	Genescope Output 95 dB	TP02 F-2935	TP02 F-2936 Use Detector Probe	T01, T02, T03, T04 (F-2935) T01, TC01 (F-2935)	Max wave-form Make the maker position symmetrical	IF BAND WIDTH →WIDE 
		Same as above	Same as above	Same as above	T02 (F-2936)	Make wave-form the same hight at step 1 Make the maker position symmetrical	IF BAND WIDTH →NARROW 
2.	Discriminator Coil Adj. (In case of using Genescope)	No Input		TP02 F-2937 DC Volt Meter	T03 (F-2937)	DC 0.1 V ~ 0.15V	
		Genescope Output 90 dB	TP02 F-2935	TP02 F-2937	T01, T02, T03 (F-2937)	Make steep linear S curve Make the serve symmetrical	
3.	IF Coil, Group Delay, Discriminator coil Adj. (In case of using Dist Meter)	90 MHz ANT Input 65 dBf (59.8 dB) 1000 Hz (100% MOD) FM SSG	ANT terminal 300Ω	Output Terminal L-CH or R-CH Connect VTVM Scope, Dist Meter	T01, T02, T03 T04 (F-2935) T01, T02 TC01 (F-2936) T01, T02, T03 (F-2937)	Mini Distortion	Adjust to set IF BAND WIDTH to be WIDE at first, then adjust T02 on F-2936 to set IF BAND WIDTH to be Narrow (See Note on P6)
4.	FET Bias Adj.	No Input		Voltage between earth & source of FET02, 03 on F-2935 DC Volt Meter	VR01 (FET02) VR02 (FET03) (F-2935)	DC 1V	
5.	Signal Meter Adj.	90 MHz ANT Input 65 dBf (59.8 dB) 1000 Hz (100% MOD) FM SSG	ANT terminal 300Ω	Signal Meter	T03, T04 (F-2936)	Max. indication on Signal Meter	
		90 MHz ANT Input 100 dBf (94.8 dB) 1000 Hz (100% MOD) FM SSG	Same as above	Same as above	VR01 (F-2936)	Make the indication of signal meter 100 dBf	
6.	Tune Meter Adj.	90 MHz ANT Input 65 dBf (59.8 dB) 1000 Hz (100% MOD) FM SSG	Same as above	Tune Meter	T05 (F-2936)	Center Position on Tune Meter	
		No Input		Same as above	VR02 (F-2936)	Same as above	
7.	RF Sensitivity Adj.	90 MHz ANT Input 20 dBf (14.8 dB) 1000 Hz (100% MOD) FM SSG	ANT terminal 300Ω	Signal Meter OUTPUT Terminal L-CH or R-CH connect VTVM & Scope	L01, L02, L03, L04 L05, TC01 TC02, TC03, TC04, TC05 (F-2935)	Max. indication of VTVM Scope Signal Meter	Make the sensitivity in the FM Band evenly. 
		83 MHz ANT Input 20 dBf (14.8 dB) 1000 Hz (100% MOD) FM SSG	Same as above	Same as above	L01, L02, L03, L04, L05 (F-2935)	Same as above	
		98 MHz ANT Input 20 dBf (14.8 dB) 1000 Hz (100% MOD) FM SSG	Same as above	Same as above	TC01, TC02, TC03 TC04, TC05 (F-2935)	Same as above	

2) FM Stereo Adjustment

Note: 1. Selector . . . . . FM AUTO

STEP	SUBJECT	FEED SIGNAL FROM	FEED SIGNAL TO	MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
1.	MPX VCO Adj.	90 MHz ANT Input 65 dBf (59.8 dB) FM SSG Pilot 19 kHz (9% MOD) Sub 1kHz + Pilot (100% MOD) Stereo SG	ANT terminal 300Ω	STEREO Indicator	VR01 F-2972	Make STEREO Indicator luminous	Center Position of lighting range.
	MPX VCO Adj. (Use Freq. counter)	90 MHz ANT Input 65 dBf (59.8 dB) FM SSG (No MOD)	Same as above	TP01 F-2972 Connect freq. counter	VR01 F-2972	76 kHz ± 76 kHz	
2.	MUTING Adj.	90 MHz ANT Input 18 dBf (12.8 dB) FM SSG	Same as above	STEREO Indicator	VR03 F-2972	18 dBf	STEREO indicator turns on above 18 dBf input & turns off below 18 dBf input.
3.	PILOT CANCELL Adj.	90 MHz ANT Input 65 dBf (59.8 dB) FM SSG Pilot 19 kHz (9% MOD) Stereo SG	Same as above	OUTPUT terminal L-CH or R-CH connect VTVM Scope	VR02, T01 F-2972	Minimum output	
4.	Separation Adj.	90 MHz ANT Input 65 dBf (59.8 dB) FM SSG Pilot 19 kHz (9% MOD) L-CH 1 kHz + Pilot (100% MOD) Stereo SG	Same as above	OUTPUT terminal L-CH connect VTVM Scope		Read the indication on VTVM	
		Same as above	Same as above	OUTPUT terminal R-CH connect VTVM Scope	VR06 F-2972	−50 dB from the indication above.	Confirm R → L-ch
5.	Auto Noise Filter Adj.	90 MHz ANT Input 40 dB (34.8 dB) FM SSG Pilot 19 kHz (9% MOD) Sub 1 kHz + Pilot (100% MOD) Stereo SG	Same as above	OUTPUT terminal L-CH or R-CH connect VTVM Scope		Read the indication on VTVM	Noise Filter Switch → AUTO
		90 MHz ANT Input 40 dBf (34.8 dB) FM SSG Pilot 19 kHz (9% MOD) Sub 10 kHz + Pilot (100% MOD) Stereo SG	Same as above	Same as above	VR04 F-2972	−3 dB from the indication above	
6.	Calibration Adj.	90 MHz ANT Input 65 dBf (59.8 dB) 1000 Hz (100% MOD) FM SSG	Same as above	Same as above		Read the indication on VTVM	
				Same as above	VR05 F-2972	−5 dB from the indication above.	Calibration Switch → ON

Note:
In the adjustment using Dist Meter, the equipments with following accuracy are required.

1. FM SSG . . . . . Distortion: Less than 0.1 %
   S/N ratio: More than 90 dB
2. Stereo SG . . . . . Distortion: Less than 0.1 %
   S/N ratio: More than 90 dB
3. Dist Meter . . . . . Providing 0.1% full-scale range

●Abbreviations

Equipment

AM FM Generator Oscilloscope	Genescope
AM Standard Signal Generator	AM SSG
FM Standard Signal Generator	FM SSG
FM Stereo Generator	Stereo SG
Oscilloscope	Scope
Audio Oscillator	Audio Osc.
Distortion Meter	Dist. Meter

Others

Antenna	ANT.
Modulation	MOD.
Total Harmonic Distortion	T.H.D.

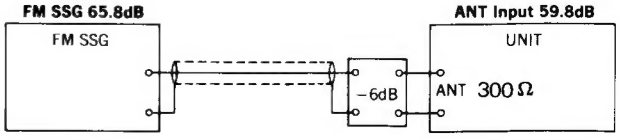
● NEW MEASUREMENT FOR FM.

Input signal level under the provision of IHFM-T-200, a new measurement method is indicated by available power ratio "dBf" To obtain approximate available power ratio "dBf", abstract 0.8 from attenuater indication of general FMSG (open load indication type); however, the former measurement, IHFM-T-100 is designated together too.

The way of modulation of IHFM-T-200 is shown below.

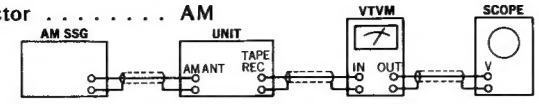
	modulation frequency	modulation mode	modulation factor
FM MONO	1000 Hz		100%
FM STEREO	1000 Hz	SUB	Pilot 9% Pilot + SUB 100%

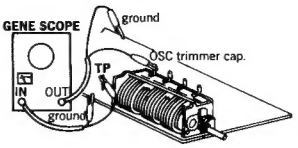
- The relation between the standard input 65 dBf of IHFM-T-200 and the former indication "dB" is shown below.



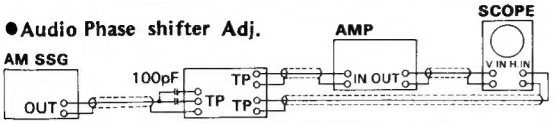
3-2. AM IF Adjustment & Dial Calibration

Note: 1. Selector . . . . . AM

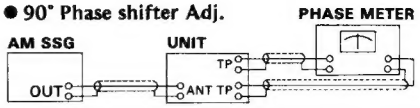


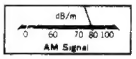
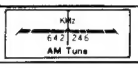
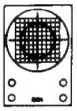
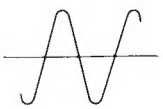


● Audio Phase shifter Adj.



● 90° Phase shifter Adj.



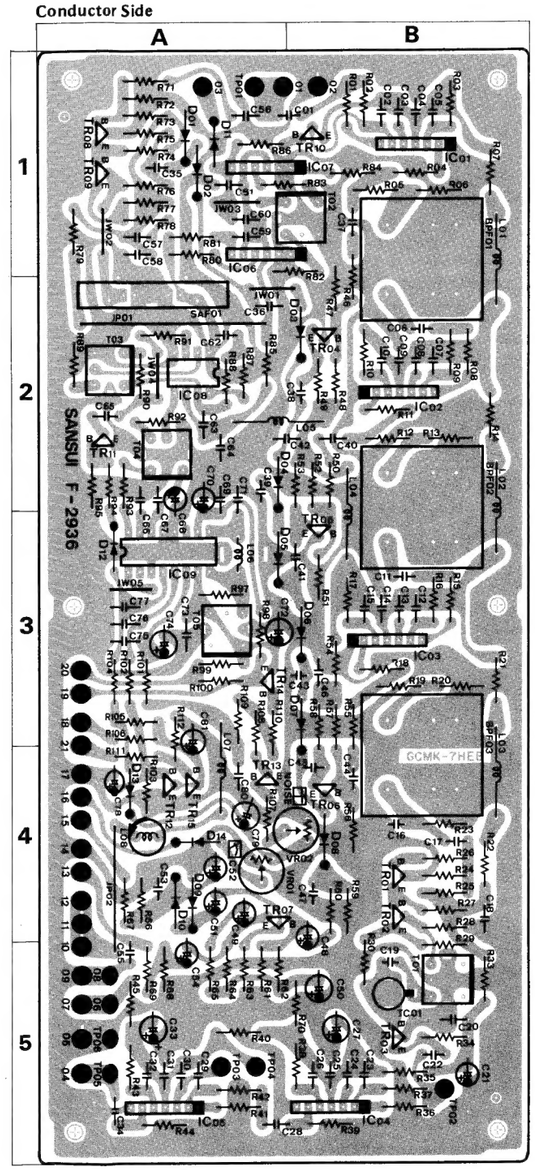
STEP	SUBJECT	FEED SIGNAL FROM	FEED SIGNAL TO	MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
1.	IF Coil Adj.	Genescope Output 90 dB	TP03 F-2783	TP10 F-2783	T02 F-2783	Max. wave-form Make the Marker Position symmetrical	
2.	AGC Adj.	AM SG Output 90 dB 1 kHz (30% MOD)	ANT terminal	TP10 F-2783 Connect VTVM	VR01 F-2783	160 mV	
3.	Signal Meter Adj.	AM SG Output 80 dB 1 kHz (30% MOD)	Same as above	Signal Meter	VR02 F-2783	Make the indication on Signal Meter 80 dB	
4.	Tune Meter Adj.	No Input		Tune Meter	VR08 F-2783	Center Position on Tune Meter	
5.	VCO Adj.	No Input		TP12 F-2783 Connect freq. counter	T04 F-2783	455 kHz	
6.	90° Phase Shifter Adj. (In case of using Phase Meter)	AM SG Output 90 dB 1 kHz (30% MOD)	TP03 F-2783	TP13, TP14 F-2783 Connect Phase Meter	VR07 F-2783	90° Phase difference	
	90° Phase Shifter Adj.	No Input			VR07 F-2783	Center Position	
7.	Audio Phase Shifter Adj.	Audio OSC Output 1 kHz 2.5 V	TP06, TP07 F-2783	TP08, TP09 F-2783 Make lissajous figure	VR03 F-2783	90° Phase difference	 Make lissajous figure circle
		Audio OSC Output 9 kHz 2.5 V	Same as above		VR04 F-2783	90° Phase difference	
8.	Beat Canceller Adj.	The nearest AM broadcast		Tune Meter	Tuning Knob	The broadcasting frequency	
		AM SG Output −10 dB than the broadcast on Signal Meter and +4 kHz than the broadcast	ANT terminal	OUTPUT terminal Connect AMP Speaker	VR05 F-2783	Minimum beat sound	Beat Canceller Switch → ON, lower
9.	Muting Adj.	AM SG Output 40 dB 1 kHz (30% MOD)	Same as above	OUTPUT terminal Connect VTVM Scope	VR06 F-2983	Make the output not appearing	MUTING switch → ON OUTPUT appears when AM SG OUTPUT becomes above 40 dB
10.	Dial Calibration Adj.	600 kHz AM SG Output 60 dB 1 kHz (30% MOD)	Same as above	Tune Meter	T01 F-2783	Make the indication on Tune Meter Center	
		1400 kHz AM SG Output 60 dB 1 kHz (30% MOD)	Same as above	Same as above	TC03 F-2783	Same as above	
11.	Sensitivity Adj.	600 kHz AM SG Output 60 dB 1 kHz (30% MOD)	Same as above	OUTPUT terminal Connect VTVM Scope	L01 (Bar Antenna) T03 F-2925	Max. OUTPUT	
		1400 kHz AM SG Output 60 dB 1 kHz (30% MOD)	Same as above	Same as above	TC02 F-2925 VC701	Same as above	
		600 kHz AM SG Output 60 dB 1 kHz (30% MOD)	FA-7 terminal	Same as above	T02 F-2925	Same as above	
		1400 kHz AM SG Output 60 dB 1 kHz (30% MOD)	Same as above	Same as above	TC01 F-2925	Same as above	

4. PARTS LOCATION & PARTS LIST

- Since some of capacitors and resistors are omitted from parts lists in this Service Manual, refer to the Common Parts List for capacitors & resistors which was appended previously to each Sansui Manual.

4-1. F-2936 FM IF Circuit Board (Stock No. 7522071)

Conductor Side

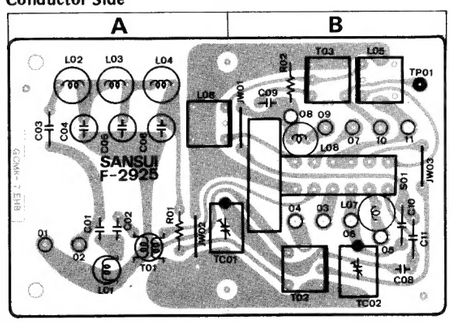


Parts List

Parts No.	Stock No.	Description	Position
•Transistors			
TR01 ~ 06	0306241, 2	2SC1675 L, K	2,3,4,5B
TR07	0305951 ~ 3	2SC945 Q, P, K	4A
TR08, 09	0306241, 2	2SC1675 L, K	1A
TR10 ~ 15	0305951 ~ 3	2SC945 Q, P, K	1B,2,3,4A
IC 01 ~ 03	0360540	IC μPC 1163H	1,2,3B
IC 04, 05	0360590	IC TA-7302P	5B,5A
IC 06, 07	0360120	IC μPC555H	1A
IC 08	0360510	IC LA-1222	2A
IC 09	0360350	IC HA1137W	3A
•Diodes			
D 01 ~ 10	0310330, 1	1N60	1,2,3,4A,2,3,4B
D 11, 12	0340170	MV-103	1A,3A
D 13	0340150	MV-12	4A
D 14	0340170	MV-103	4A
C 19	0669502	2pF 50V C.C.	5B
L 01 ~ 05	4290011	Peaking Coil	1,2,3,4B
L 06	4290300	18μH Inductor	3A
L 07	4290011	Peaking Coil	4A
L 08	4900340	10μH Inductor	4A
T 01	4236130	IF Coil	5B
T 02	4235860	FM IF Coil	1B
T 03, 04	4235930	IF Coil	2A
T 05	4236040	IF Coil	3A
BF01 ~ 03	4236070	FM IF Coil	1,2,3B
VR01	1035130	Volume 10kΩ B FM, S Meter	4A
VR02	1035190	Volume 100kΩ B Noise	4B
TC01	1230090	Trimmer Capacitor	5B
SF01	0910470	SAW Filter	

4-2. F-2925 Antenna Selector Circuit Board (Stock No. 7597291)

Conductor Side

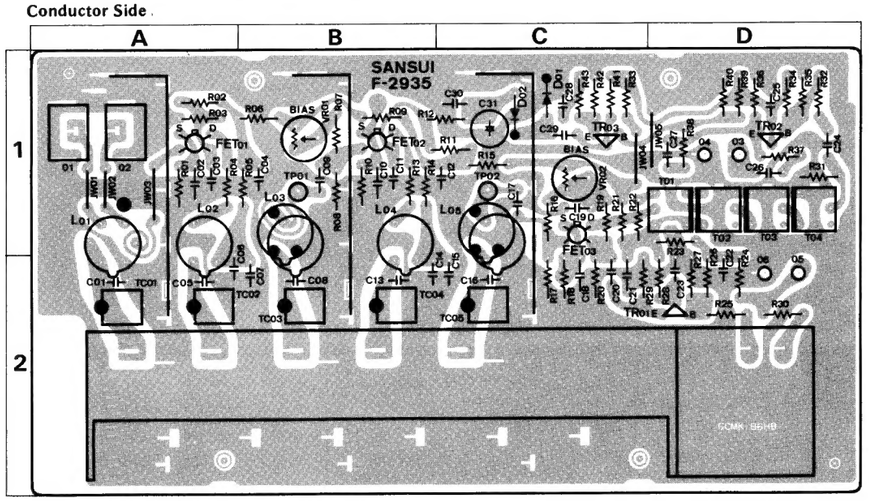


Parts List

Parts No.	Stock No.	Description	Position
C 01, 02	0661270	27pF 50V C.C.	A
C 04, 05	0621222	2200pF 50V P.C.	A
C 06	0621332	3300pF 50V P.C.	A
C 10	0679008	1.0pF 500V Gimmic Capacitor	B
C 11	0679024	0.33pF 500V Gimmic Capacitor	B
L 01	4290380	0.13μH Choke Coil	A
L 02	4900280	1.0μH Inductor	A
L 03, 04	4900470	8.2μH	A
L 05, 06	4290350	240μH Choke Coil	B,A
L 07, 08	4900140	Inductor	B
T 01	4290390	FM Coil	A
T 02	4200940	AM ANT Coil	B
T 03	4210390	AM RF Coil	B
S 01	1131730	Push Switch	B
TC01, 02	1230100	Trimmer Capacitor	A,B

4-3. F-2935 Front-end Circuit Board (Stock No. 7510741)

Conductor Side

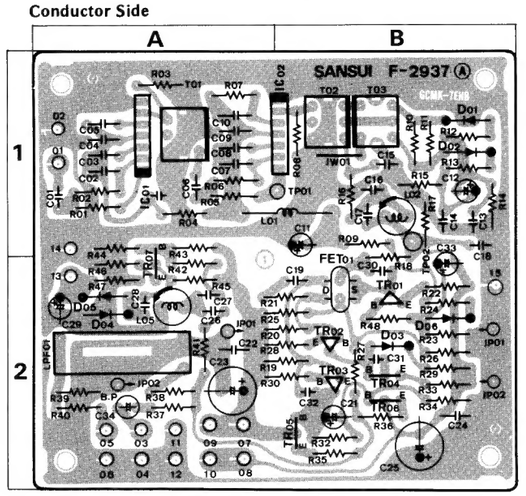


Parts List

Parts No.	Stock No.	Description	Position
•Transistors			
TR01 ~ 03	0306341, 2	2SC1674 L, K	1C,B,2D
•FET			
FET01 ~ 03	0370130, 1	3SK41 (I) M, L	1A,B,C
•Diodes			
D 01, 02	0311160 / 0311180	1S2473D / 1S1588	1C
C 01	0669527	7pF 50V C.C.	2A
C 05	0669306	22pF 50V C.C.	2A
C 08	0669305	20pF 50V C.C.	1B
C 13	0669306	22pF 50V C.C.	2B
C 16	0669305	20pF 50V C.C.	2C
L 01	4200920	FM Antenna Coil	1A
L 02 ~ 05	4210380	FM RF Coil	1A,B,C
T 01	4236090	IF Coil	1D
T 02	4236100	IF Coil	1D
T 03	4236110	IF Coil	1D
T 04	4236120	IF Coil	1D
VR01	1035250	Volume 1MΩ B RF Bias	1B
VR02	1035230	Volume 470kΩ B RF Bias	1C
VC01	1220290	AM, FM Variable Capacitor	
TC01 ~ 05	1230110	Trimmer Capacitor	2A,B,C

4-4. F-2937 Discriminator Circuit Board (Stock No. 7522081)

Conductor Side

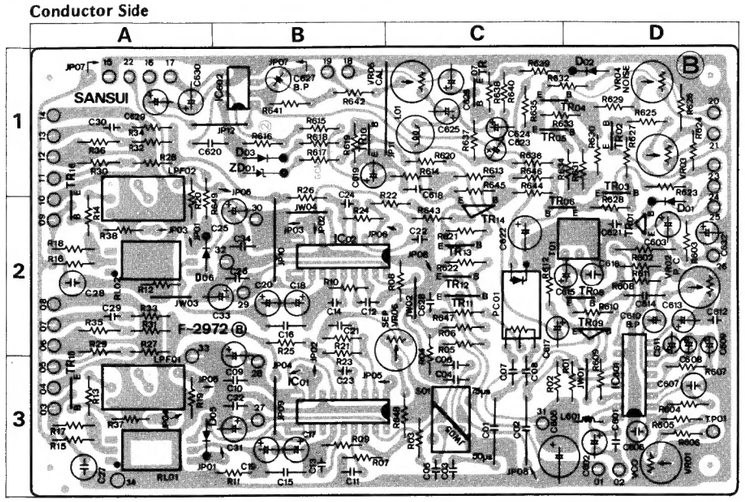


Parts List

Parts No.	Stock No.	Description	Position
•Transistors			
TR01	0306741	2SC1845 E	2B
TR02, 03	0301091	2SA992 E	2B
TR04, 05	0306741	2SC1845 E	2B
TR06	0301091	2SA992 E	2B
TR07	0305951 ~ 3	2SC945 Q, P, K	1A
IC 01	0360590	IC TA-7302P	1A
IC 02	0360540	IC μPC 1163H	1B
•FET			
FET01	0370311, 2	2SK129 L, M	1B
•Diodes			
D 01 ~ 03	0311160	1S2473D	1,2B
D 04, 05	0310330, 1	1N60	2A
C 13, 14	0622221	220pF 125V P.C.	1B
C 15, 16	0623101	100pF 125V P.C.	1B
C 17	0623680	68pF 125V P.C.	1B
C 18	0623101	100pF 125V P.C.	1B
C 19	0622331	330pF 125V P.C.	2B
C 22, 24	0680041	0.047μF 100V M.C.	2A,2B
C 30	0623220	22pF 125V P.C.	
L 01	4290011	Peaking Coil	1B
L 02	4900310	3.3μH Inductor	1B
L 05	4900460	1000μH Inductor	2A
T 01	4235860	FM IC Coil	1A
T 02	4236140	IF Coil	1B
T 03	4236150	IF Coil	1B
LF01	0910400	Adjacent Channel Filter	

4-5. F-2972 MPX Circuit Board (Stock No. 7540871)

Conductor Side



Parts List

Parts No.	Stock No.	Description	Position
•Transistors			
TR01	0305951, 2	2SC945 Q, P	2A
TR02	0306740, 1	2SC1845 F, E	3A
TR03	0300680, 1	2SA733 (2) P, Q	3A
TR04	0306740, 1	2SC1845 F, E	3A
TR05, 06	0305951, 2	2SC945 Q, P	3A
TR07 ~ 10	0306740, 1	2SC1845 F, E	2A, 3B
TR11, 12	0305951, 2	2SC945 Q, P	2B
TR13, 14	0300680, 1	2SA733 (2) P, Q	2B

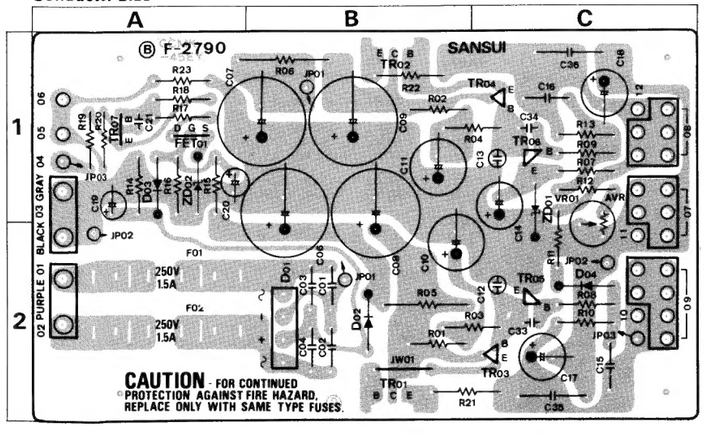
Parts No.	Stock No.	Description	Position
IC 01, 02	0360810	IC μPC-1190C	1C, 2C
IC 601	0360680	IC HA11223	1A
IC 602	0360770	IC NJM4558D	3C
•Diodes			
D 01	0311160 / 0311180	2S2473D / 1S1588	2A
D 02	0340150	MV-12 Varistor	3A
D 03	0311160 / 0311180	1S2473D / 1S1588	3C

Parts List

Parts No.	Stock No.	Description	Position
D 05, 06	0310340	10D1	1C, 2C
•Zener Diode			
ZD01	0311160 / 0311180	RD13E B / RD13E C	3C
PC	0920080	P873-G35-911 Photo Coupler	2A
C 01, 02	0681001	0.47μF 250V M.C.	1B
C 09	0584100	10μF 35V E.C.	1B
C 11, 12	0602228	0.22μF 100WV	1C, 2B
C 15, 16	0602108	0.1μF 100WV M.C.	1C, 2C
C 21, 22	0620101	100pF 50V P.C.	2C, 2B
C 27, 28	0622102	1000pF 125V P.C.	1D, 3D
C 604	0573339	3.3μF 35WV T.C.	1A
C 606	0620102	1000pF 50V P.C.	1A
C 607	0620222	2200pF 50V P.C.	1A
C 608	0573478	0.47μF 35WV T.C.	1A
C 609	0573339	3.3μF 35WV T.C.	1A
C 611	0573339	3.3μF 35WV T.C.	2A
C 613	0573228	0.22μF 35WV T.C.	2A
C 614	0602228	0.22μF 100WV M.C.	2A
C 615	0573229	2.2μF 35WV T.C.	2A
C 616	0629061	6800pF 50V P.C.	2A
C 617	0583330	33μF 25V E.C.	2B
C 619	0573228	0.22μF 35WV T.C.	3B
C 620	0602228	0.22μF 100WV M.C.	3C
C 623, 624	0573339	3.3μF 35WV T.C.	3B
C 625	0511108	0.1μF 35WV	3B
L 01	4900220	100mH Inductor	3B
T 01	4240720, 1	MPX Coil	2A
LF 01, 02	0910440	Low Pass Filter	
RL 01, 02	1150520	Relay	1D, 2D
VR01	1034240	3.3kΩ B	1A
VR02	1035170	Volume 47kΩ B	2A
VR03	1035170	Volume 47kΩ B	3A
VR04	1035170	Volume 47kΩ B	3A
VR05	1035130	Volume 10kΩ B	3B
VR06	1035210	Volume 220kΩ B	1B, 2B
S01	1110270	Slide Switch	

4-6. F-2790 Power Supply Circuit Board (Stock No. 7503201)

Conductor Side

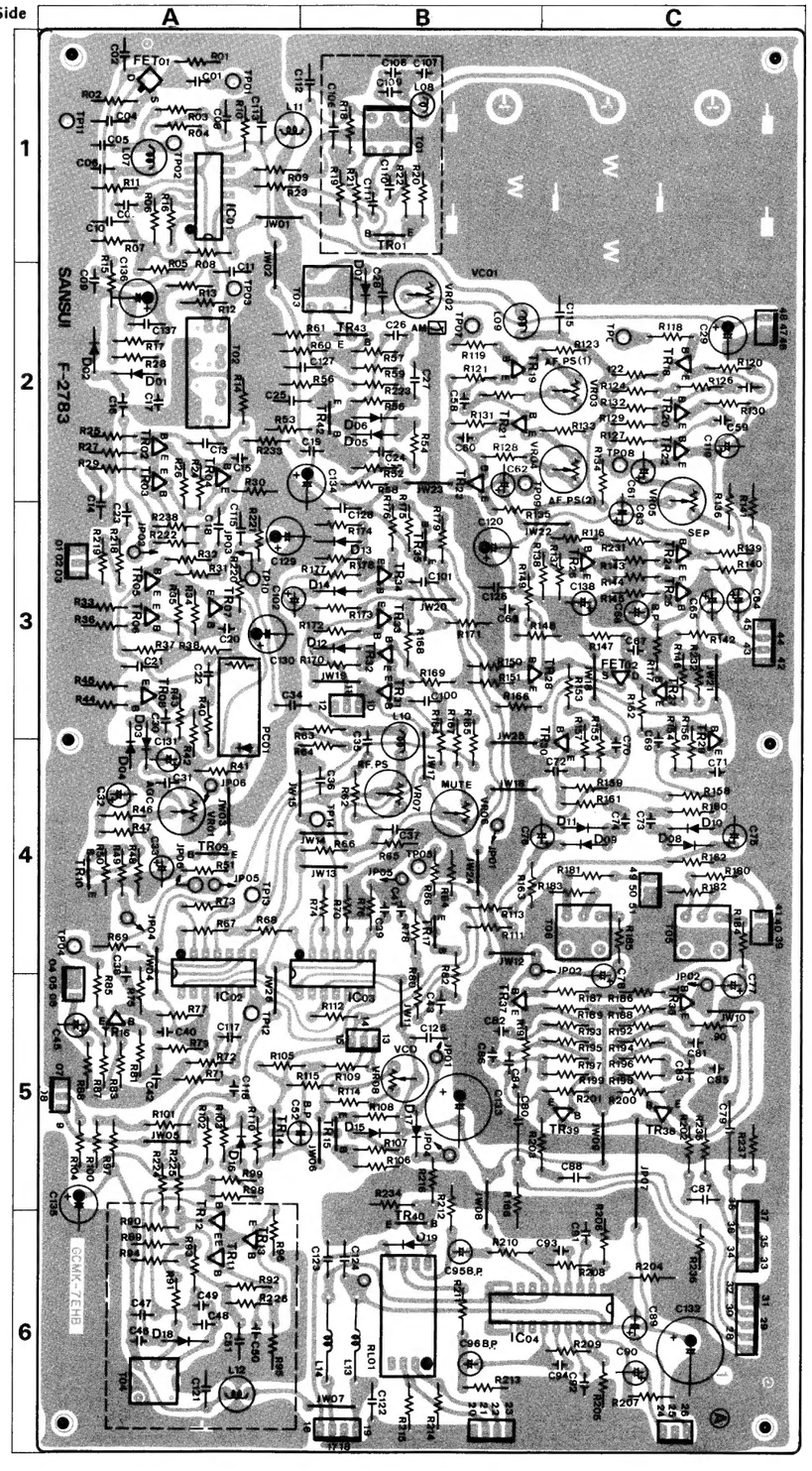


Parts List

Parts No.	Stock No.	Description	Position
•Transistors			
TR01	0308391, 2	2SD313AL D, E	2B
TR02	0303231, 2	2SB507V11-AL D, E	1B
TR03	0306550, 1	2SC1775 E, F	2C
TR04	0300930, 1	2SA872 D, E	1C
TR05	0306740, 1	2SC1845 E, F	2C
TR06	0301090, 1	2SA992 E, F	1C
TR07	0300930, 1	2SA872 D, E	1A
•FET			
FET01	0370342, 3	2SK163L1, 2	1A
•Diodes			
D 01	0311700	RB-152	2B
D 02, 03	0310340	10D1 (1S2226) Silver	2B, 1A
D 04	0311160 / 0311180	1S2473D / 1S1588	2C
•Zener Diodes			
ZD01	0316390	RD6.2E B	1C
ZD02	0316230	RD9.1E B	1A
C 01 ~ 04	0681010	0.01μF 630V M.C.	2B
C 12, 13	0622202	2000pF 125V P.C.	2C, 1C
C 15, 16	0681018	0.22μF 250V M.C.	2C, 1C
C 19	0587109	1μF 80V E.C.	1A
C 20	0585479	4.7μF 50V E.C.	1A
C 21	0622471	470pF 125V P.C.	1A
C 35, 36	0681013	0.033μF 400V F.C.	2C, 1C
R 05, 06	0212229	2.2Ω 2W N.I.R.	2B, 1B
VR01	1035110	Volume 4.7kΩ B A.V.R.	1, 2C
F 01, 02	0432230	AC Fuse 1.5A 250V	2A

4-7. F-2783 AM Main Circuit Board (Stock No. 7530401)

Conductor Side



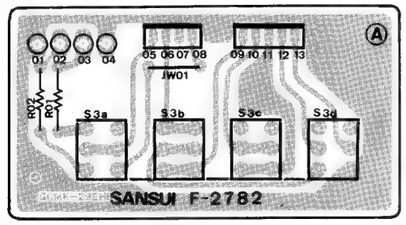
Parts List <F-2783>

Parts No.	Stock No.	Description	Position
●Transistors			
TR01 ~ 03	0306750, 1	2SC1359 B, C	1B.2A
TR04	0301100, 1	2SA838 B, C	2A
TR05, 06	0306750, 1	2SC1359 B, C	3A
TR07	0301100, 1	2SA838 B, C	3A
TR08	0306750, 1	2SC1359 B, C	3A
TR09, 10	0306740, 1	2SC1845 F, E	4A
TR11 ~ 13	0306291	2SC1400 (1) U	6A
TR14	0306730, 1	2SC2259 F, G	5A
TR15 ~ 17	0306740, 1	2SC1845 F, E	4B,5A,B
TR18, 19	0301090, 1	2SA992 F, E	2C.2B
TR20 ~ 26	0306740, 1	2SC1845 F, E	2B,C,3C
TR27, 28	0301090, 1	2SA992 F, E	3C
TR29, 30	0306740, 1	2SC1845 F, E	4C
TR31, 32	0301090, 1	2SA992 F, E	3B
TR33, 34	0306740, 1	2SC1845 F, E	3B
TR35	0301090, 1	2SA992 F, E	3B
TR36	0306740, 1	2SC1845 F, E	5C
TR38	0306740, 1	2SC1845 F, E	5C
TR40	0306740, 1	2SC1845 F, E	6B
TR42, 43	0306750, 1	2SC1359 B, C	2B
IC 01 ~ 03	0360790	LM1496N	1A,5A,B
IC 04	0360810	IC MPC 1190C	6C
●FET			
FET01	0370120, 1	3SK41 K, L	1A
FET02	0370342, 3	2SK163L1, 2	3C
●Diodes			
D 01 ~ 04	0310330, 1	1N60	2A,4A
D 05, 06	0311160 / 0311180	1S2473D / 1S1588	2B
D 07 ~ 11	0310330, 1	1N60	2B.4C
D 12 ~ 17	0311160 / 0311180	1S2473D / 1S1588	3B,5A,B
D 18	0340190	1SV-53-F3 Varistor	6A
D 19	0311160 / 0311180	1S2473D / 1S1588	6B
PC 01	0920080	P873-G35-911 Photo Couplar	3A
C 15	0669210	10pF 50V C.C.	2A
C 20	0661220	22pF 50V C.C.	3A
C 33	0573338	0.33μF 35WV T.C.	4A
C 35, 36	0622391	390pF 125V P.C.	4B
C 42, 43	0622561	560pF 125V P.C.	5A,5B
C 46	0622102	1000pF 125V P.C.	6A
C 47	0622682	680pF 125V P.C.	6A
C 48	0623470	47pF 125V P.C.	6A
C 49	0669406	22pF 50V C.C.	6A
C 60	0622561	560pF 125V P.C.	2B
C 71, 72	0622101	100pF 125V P.C.	4C
C 79	0602478	0.47μF 100WV M.C.	5C
C 87	0602108	0.1μF 1000WV M.C.	5C
C 89, 90	0602109	1.0μF 1000WV M.C.	6C
C 93, 94	0623220	22pF 125V P.C.	6C
C 107	0669406	22pF 50V C.C.	1B
C 108	0622391	390pF 125V P.C.	1B
C 109	0661220	22pF 50V C.C.	1B
L 07	4900420	220μH	1A
L 08	4900140	1μH	1B
L 09	4900400	100μH Inductor	2B
L 10	4900430	330μH	4B
L 11, 12	4900400	100μH	1B.6A
L 13, 14	4290011	Peaking Coil	6B
T 01	4220720	O.S.C. Coil	1B
T 02	4230670	IF Coil (455 kHz)	2A
T 03	4230500	IF Coil	2B
T 04	4290400	V.C.O. Coil	6A
T 05	0910460	Filter Coil	4C
RL01	1150530	Relay	6B
VR01	1034271	Volume 10kΩ AGC	4A
VR02	1034271	Volume 10kΩ AM.S Meter	2B
VR03	1034261	Volume 6.8kΩ 1 kHz AF.PS	2C
VR04	1034261	Volume 6.8kΩ 10 kHz AF.PS	2C
VR05	1034271	Volume 10kΩ Separation	2, 3C
VR06	1034341	Volume 150kΩ Muting	4B
VR07	1034171	Volume 220Ω RF.PS	4B
VR08	1034271	Volume 10kΩ AM.T Meter	5B
VC01	1200060	AM Variable Capacitor	2B

- **The circuit boards, F-2782, F-2786, F-2788, F-2787, F-2789, F-2792 & F-2791 are not supplied as the assembled, the individual parts on the circuit boards, however are provided for orders.**

4-8. F-2782 Switch Circuit Board

Conductor Side

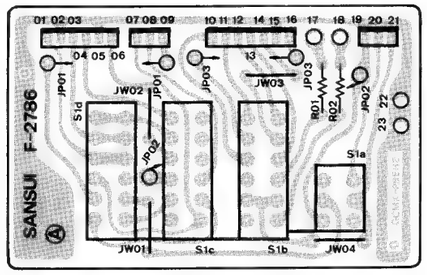


Parts List

Parts No.	Stock No.	Description
	1131760	Push Switch, IF Band/Muting

4-9. F-2786 AM Selector R-CH Board

Conductor Side

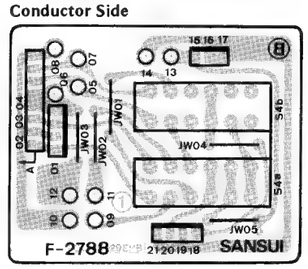


Parts List

Parts No.	Stock No.	Description
	1131770	Push Switch, IF Band/Muting

4-10. F-2788 Output-1 Switch Circuit Board

Conductor Side

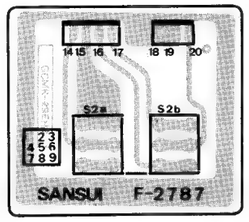


Parts List

Parts No.	Stock No.	Description
	1131750	Push Switch AM/FM Selector

4-11. F-2787 Meter Selector Circuit Board

Conductor Side

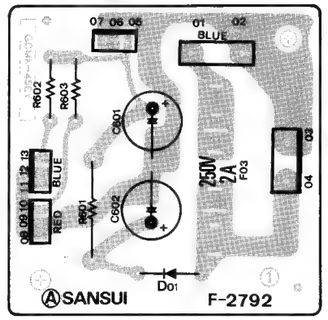


Parts List

Parts No.	Stock No.	Description
	1131740	Push Switch, Meter Selector

4-13 . F-2792 Indicator Circuit Board

Conductor Side

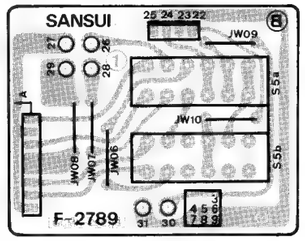


Parts List

Parts No.	Stock No.	Description
●Diode		
D 01	0310340	10D1 (1S2226)
R 601	0212479	4.7Ω 2W N.I.R.
F 03	0431240	2A 250V AC Fuse

4-12. F-2789 Output-2 Switch Circuit Board

Conductor Side

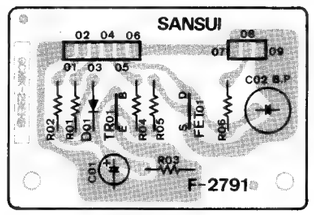


Parts List

Parts No.	Stock No.	Description
	1131750	Push Switch AM/FM Selector

4-14. F-2791 AM Tune Meter Circuit Board

Conductor Side



Parts List

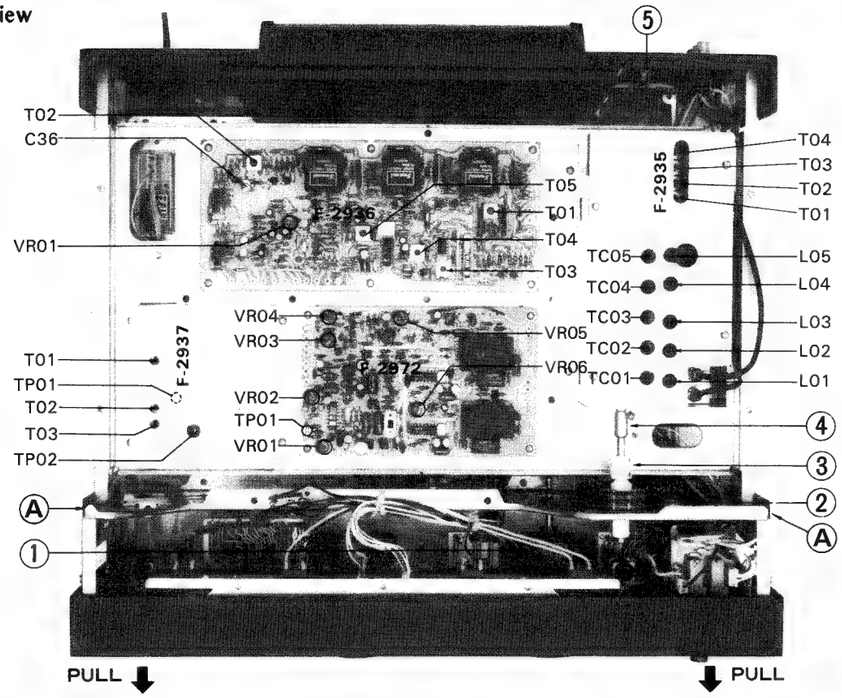
Parts No.	Stock No.	Description
●Transistors		
TR01	0306740, 1	2SC1845 F, E
●FET		
FET01	0370342, 3	2SK163 L1, L2
●Diodes		
D 01	0311160 / 0311180	1S2473D / 1S1588

● Abbreviations

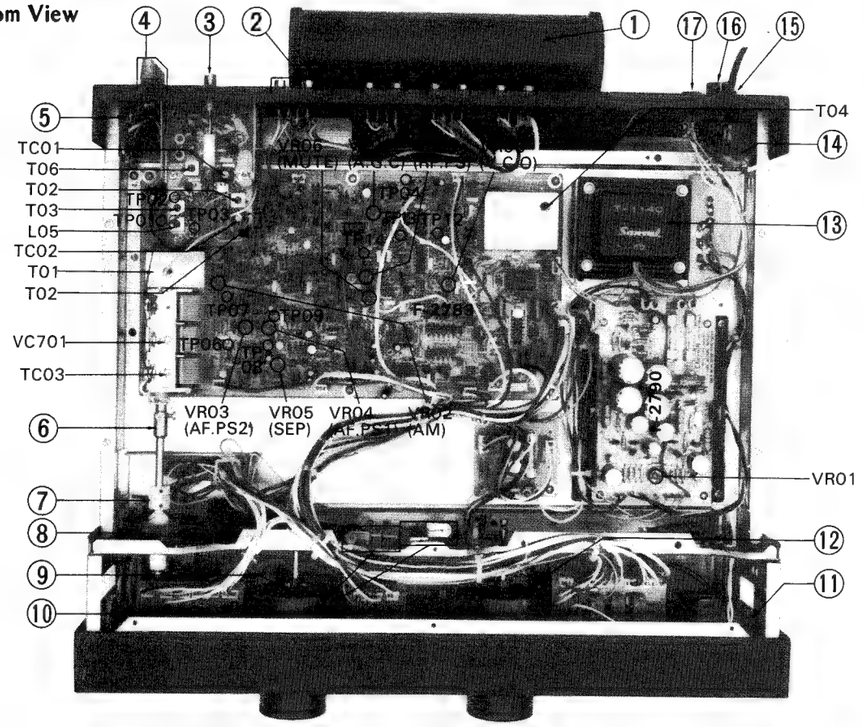
C.R.	: Carbon Resistor	E.C.	: Electrolytic Capacitor
S.R.	: Solid Resistor	BP.E.C.	: Bi-Polar Electrolytic Capacitor
Ce.R.	: Cement Resistor	C C.	: Ceramic Capacitor
M.R.	: Metal Film Resistor	Mi.C.	: Mica Capacitor
F.R.	: Fusing Resistor	O.C.	: Oil Capacitor
N.I.R.	: Non-Inflammable Resistor	P.C.	: Polystyrene Capacitor
M.C.	: Mylar Capacitor	T.C.	: Tantalum Capacitor

5. OTHER PARTS

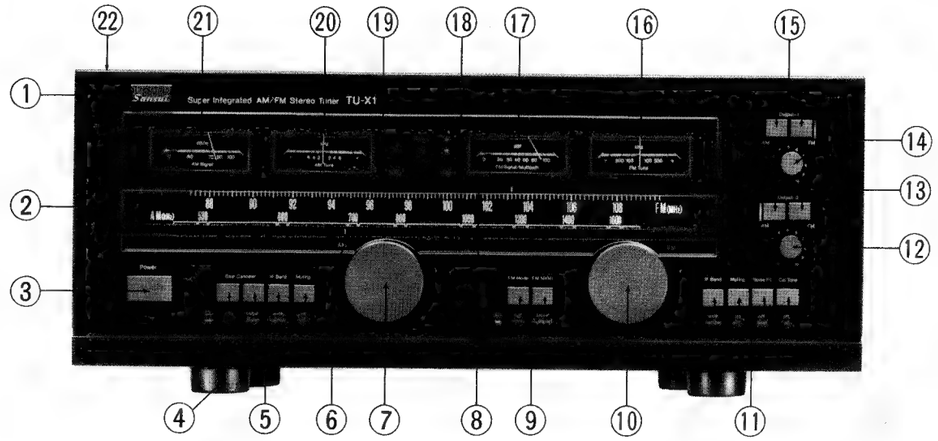
5-1. Top View



5-2. Bottom View



5-3. Front View



Parts List ⟨Top View⟩

No.	Parts No.	Stock No.	Description
1	PL701 ~ 03	0400660	Lamp
2		6146791	Dial Pulley
3		6046100	Universal Coupler
4		6046110	Joint Shaft (FM)
		2410091	Voltage Selector Plug
		2410830	Voltage Selector Socket

Parts List ⟨Bottom View⟩

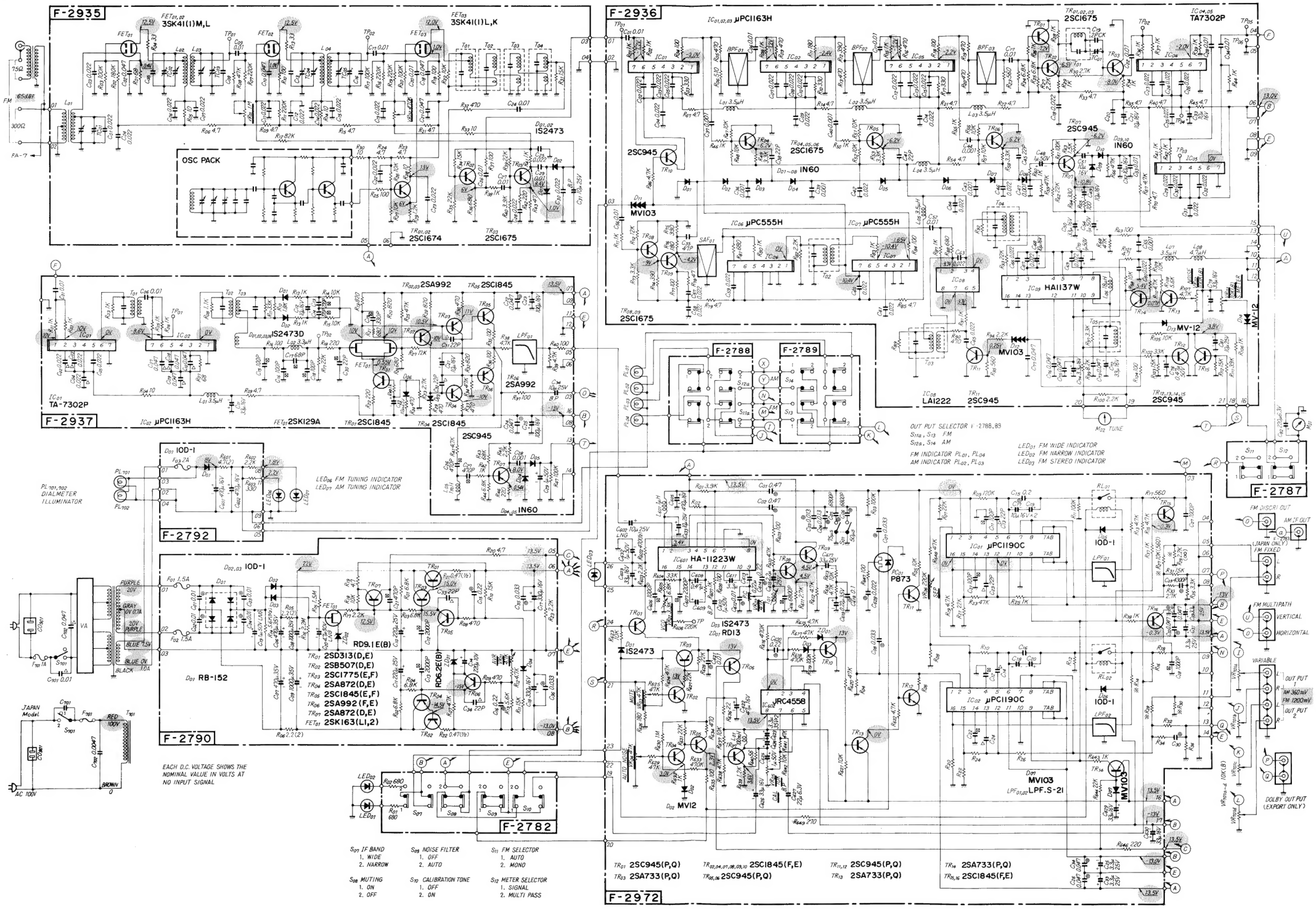
No.	Parts No.	Stock No.	Description
1		4200930	Antenna Coil
		5026450	Antenna Box
		5016080	Antenna Side Cover
2		2200560	2P Input Terminal Board
3		2440040	Coaxial Connector (with switch)
4		2210360	4P Antenna Terminal Board
5	C 703	0620682	6800pF 50V P.C.
6		6046120	Joint Shaft (AM)
7		6046100	Universal Coupler
8		6146791	Dial Pulley Unit
9		7036610	Tuning Unit
10		7136101	Tension Unit
11	C 701	0659801	0.01μF 150V C.C.
		5616220	Capacitor Cover
12		7036610	Tuning Unit
13	PT 701	4002920	Power Transformer
14	C 702	0659802	0.0047μF 125V C.C.
		5616240	Capacitor Cover
15		3800470, 1	AC Cord
		3910600	Strain Relief
16	F 701	0431220	AC Fuse 0.5A, 250V
		2300060	Fuse Holder
17		2450060	AC Outlet

Parts List ⟨Front View⟩

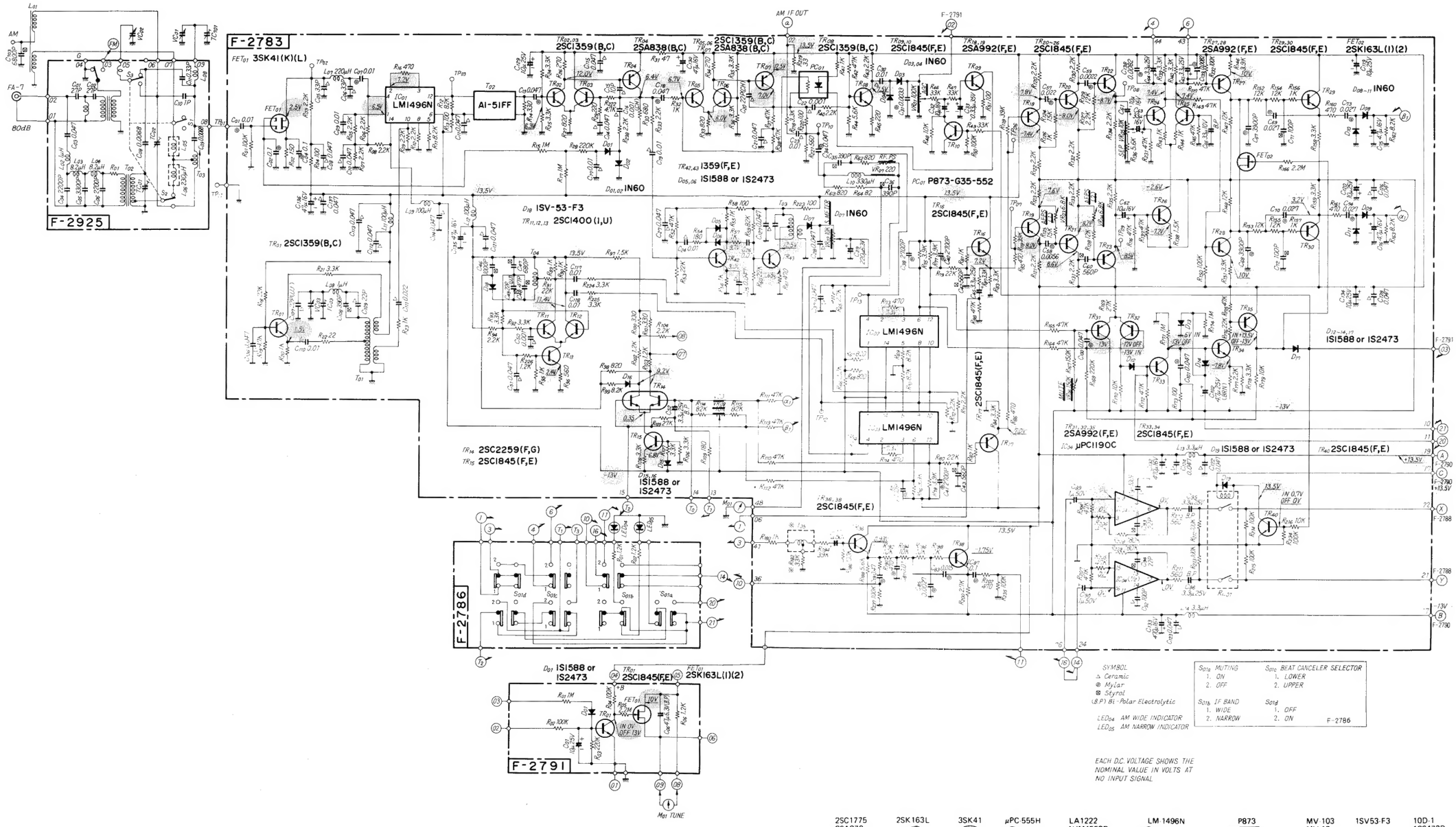
No.	Parts No.	Stock No.	Description
1		7008070	Front Panel Ass'y
		5446400	Dial Glass
		5336600	Sansui Badge
		5396600	4P Guide Plate
		5396610	2P Guide Plate, output 1, 2
		5396570	2P Guide Plate, FM mode, meter
		5396550	Guide Plate, Power
2		5408600	Dial Scale
3	S 701	1131230	Push Switch, power
		5326740	Push Button, outer
		5280330	Knob Holder, inner
4		5517050	Leg
5		5326760	Push Button, outer
		5280320	Knob Holder, inner
6		7726250	Dial Pointer Ass'y (Red AM)
7		5319230	Tuning Knob, AM
		7036610	Tuning Unit
8		7726260	Dial Pointer (Green FM)
9		5326760	Push Button (outer)
		5280320	Knob Holder (inner)
10		5319230	Tuning Knob, FM
		7036610	Tuning Unit
11		5326760	Push Button (outer)
		5280320	Knob Holder (inner)
12	VR70	1015470	Volume 5kΩ (B) x 2 output 2
		5319220	Knob, output 2
13	PL 70	0400680	Lamp Ass'y with 4P Connector
		5326760	Push Button (outer)
		5280320	Knob Holder (inner)
14	VR70	1015470	Volume 5kΩ (B) x 2 output 1
		5319220	Knob, output 1
15	PL 70	0400680	Lamp Ass'y with 4P Connector
		5326760	Push Button (outer)
		5280320	Knob Holder (inner)
16	M 702	4301320	FM Tune Meter
17	M 701	4301310	FM Signal Meter
18	D703 ~ 705	0319180	LED, FM indicator
19	D701, 702	0319170	LED, AM indicator
20		4301340	AM Tune Meter
21		4301330	AM Signal Meter
22		5006830	Bonnet

- Design and specifications subject to change without notice for improvement.
- La présentation et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
- Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.

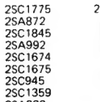
6. SCHEMATIC DIAGRAM 6-1. FM Section



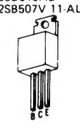
6-2. AM Section



2SC1775 2SA872 2SC1845 2SA992 2SC1674 2SC1675 2SC945 2SC1359 2SA838 2SC1400 2SC733



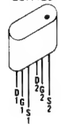
2SD313AL 2SB507V 11-AL



2SK163L

3SK41

2SK129

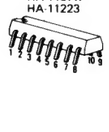


μPC-555H

2SC2259

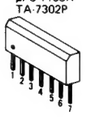
LA1222 NJM4558D

HA-1137W HA-11223

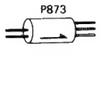


LM-1496N

μPC-1163H TA-7302P



P873

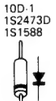


μPC-1190C

MV-103 MV-12

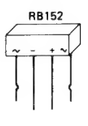
1SV53-F3

10D-1 1S2473D 1S1588



RD6.2E RD9.1E RD13E

RB152



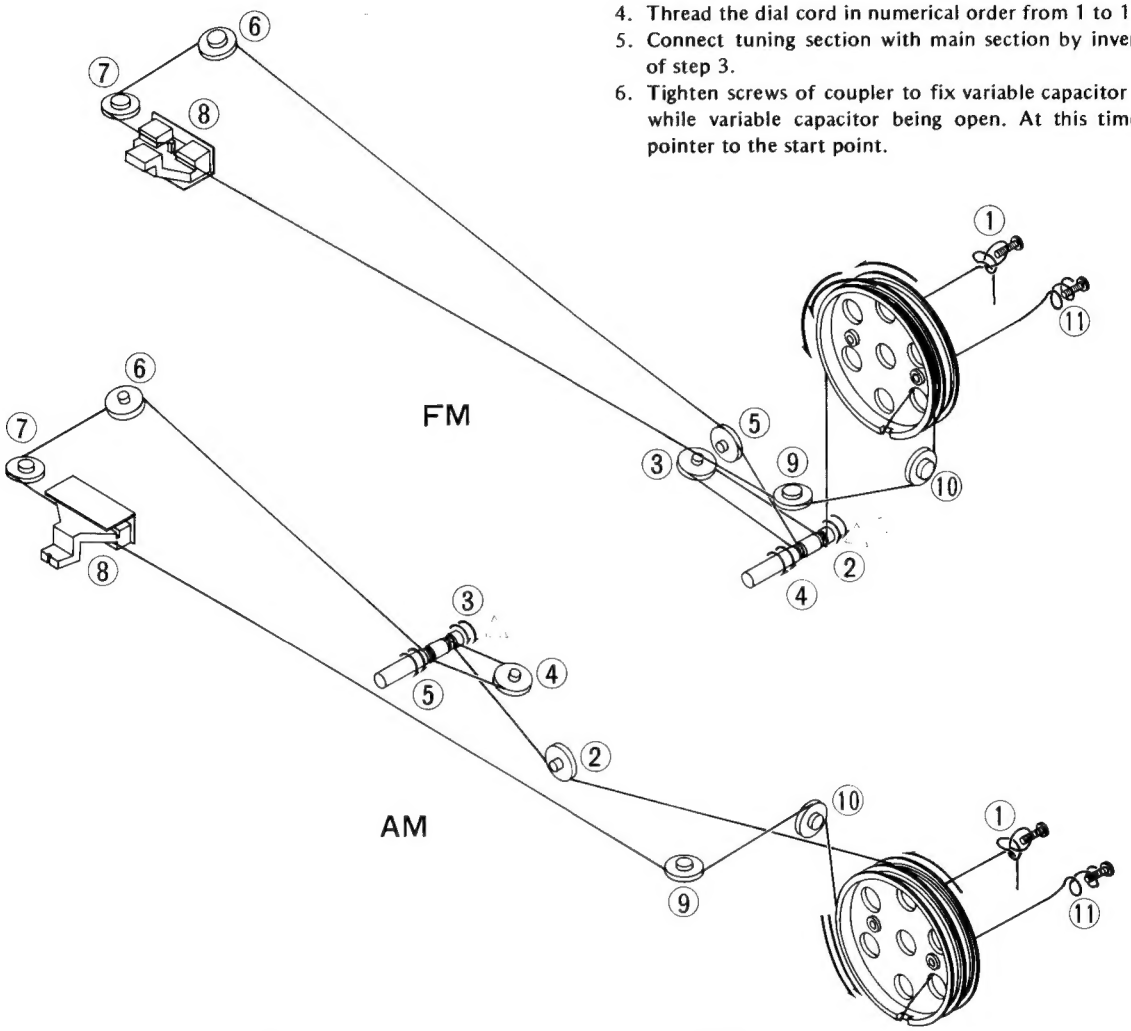
1N60

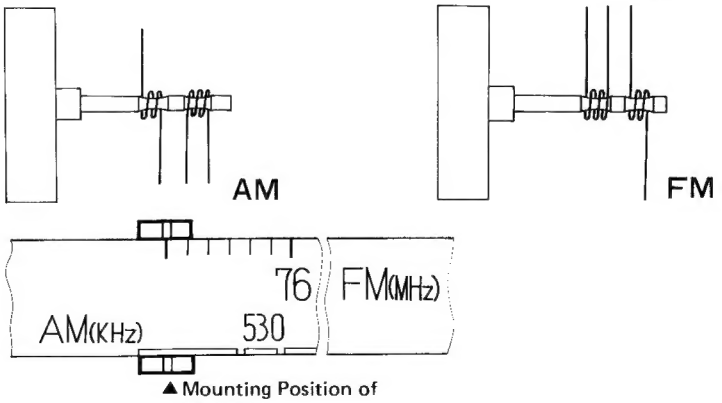
7. THREADING OF DIAL CORD

- If a dial cord is cut off or slips, replace it by following procedures. As this unit uses 0.5 mmϕ cord, please replace it with the same type certainly.
- The length of dial cord is approximately 170 cm (68 inch).

7-1. Procedure

1. Remove bonnet.
2. Loosen screws of coupler connecting variable capacitor & dial pulley.
3. Separate tuning section from main section to loosen 4 screws A (see top & bottom view on page 13) fixing tuning section to main section.
4. Thread the dial cord in numerical order from 1 to 11 as Fig.
5. Connect tuning section with main section by inverse procedure of step 3.
6. Tighten screws of coupler to fix variable capacitor to dial pulley while variable capacitor being open. At this time, attach dial pointer to the start point.



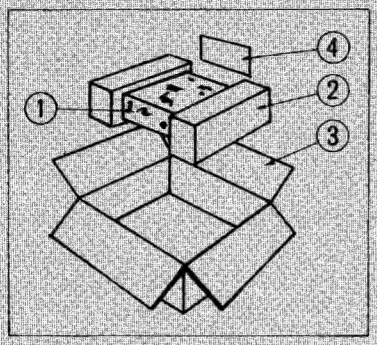


▲Mounting Position of Dial Pointer

* Dial Cord (0.5 mmϕ) . . . . . (Stock No. 6036051)

8. PACKING LIST

Parts No.	Stock No.	Description
1	9116800	Vinyl Cover
2	9028310	Styrofoam Packing
3	9001591	Carton Case
4	9019610	Corrugated Paper, Protector



9. ACCESSORY PARTS LIST

Stock No.	Description
9203860	Operating Instructions
3810280	PJP Cord
3820120	FM Antenna
9916229	Antenna Coupler
2440021	F Type Connector
9238010	Schematic Diagram

Sansui

SANSUI ELECTRONICS CORPORATION: 1250 Valley Brook Ave. Lyndhurst, N.J. 07071 U.S.A.
333 West Alondra Blvd. Gardena, California 90247 U.S.A.
3036 Koapaka St. Honolulu, Hawaii 96819 U.S.A.
SANSUI AUDIO EUROPE N.V.: North Trade Bldg (9th floor) Noorderlaan 133-Bus 1,2030 Antwerp, Belgium
SNASUI AUDIO EUROPE S.A.: Arabella center, 6 Frankfurt AM Main, Lyoner Strasse 44-48, West Germany
SANSUI ELECTRIC COMPANY LTD.: 14-1, Izumi 2-chome, Suginamiku, Tokyo 168 Japan PHONE: (03) 323-1111/TELEX: 232-2076

SM136

Printed in Japan (797230M)